

WHAT IS CLAIMED IS:

1. A fee collecting system for motor vehicles, which detects the entrance and departure of motor vehicles and makes charges, the system comprising:

10 a plurality of collecting systems transmitting payment request signals to a detected motor vehicle when the motor vehicle is detected, each collecting system outputting response signals of the payment request, an ID number and time information when the response signal to the payment request is received from the motor vehicle;

15 a motor vehicle control device mounted in the motor vehicle, the motor vehicle control device transmitting a telephone number and response signal to the payment request with information of the motor vehicle when the payment request signal is detected from the collecting system; and

20 a central system receiving and recording the response signal of payment request, the ID number and the time information output from the collecting system, the central system calculating charges based on the recorded information when the motor vehicle goes out and requesting settlement of the payment

2. The system according to claim 1, wherein the system further comprising payment system settling the payment of the charges when the payment is requested from the central system and notifying it to the central system.

25 3. The system according to claim 1, wherein the central system determines whether the motor vehicle enters or leaves based on the ID number.

5 4. The system according to claim 1, wherein the central system adds all charges in all areas among the collecting systems if the collecting systems are installed in the areas where a motor vehicle is traveling.

10 5. The system according to claim 1, wherein the central system calculates the charges based on a period of time between an entrance time and a departure time of the motor vehicle if the collecting systems are installed in a parking area for parking the motor vehicle during a prescribed period of time.

15 6. The system according to claim 1, wherein the collecting system has a payment request signal sending/receiving part.

20 7. The system according to claim 1, wherein the motor vehicle control device includes:
a payment request signal sending/receiving part for receiving payment request signals from the collecting system and sending response signals to payment request;
a motor vehicle information storage for storing a user's mobile phone number, the number of motor vehicle and the kind of motor vehicle;

25 a controller extracting the mobile phone number, the number of motor vehicle and the kind of motor vehicle stored in the motor vehicle information storage when the payment requesting signal is detected from the payment request signal sending/receiving part and transmitting them to the payment request signal sending/receiving part; and

an interface for transmitting data and control signals between the controller and the mobile terminal to the controller and the mobile terminal according to a designated protocol.

5 8. The system according to claim 7, wherein the motor vehicle control device includes:
a display for displaying the status of a payment request and a process result on a screen;
and
a sound output part for outputting the status of the payment request and the process result
in sound.

10 9. The system according to claim 7, wherein the motor vehicle control device includes:
a key input part for inputting an order to refer to the status of the payment request and the
process result; and
a sound input part for inputting a voice order to refer to the status of the payment request
and the process result.

15 10. A motor vehicle control device comprising:
a payment request signal sending/receiving part for receiving payment request signals and
sending response signals to payment requests;

20 a motor vehicle information storage for storing a mobile phone number, the license
number of motor vehicle and the kind of motor vehicle of a user;

25 a controller extracting the mobile phone number, the number of motor vehicle and the
kind of motor vehicle stored in the motor vehicle information storage when the payment request
signal is detected from the payment request signal sending/receiving part and transmitting them
to the payment requesting signal sending/receiving part; and

an interface for transmitting data and control signals between the controller and the
mobile terminal to the controller and the mobile terminal according to a designated protocol.

5 11. The motor vehicle control device according to claim 10, further comprising:
a display for displaying the status of a payment request and a process result on a screen;
and
a sound output part for outputting the status of a payment request and the process result in
sound.

10 12. The motor vehicle control device according to claim 10, further comprising:
a key input part for inputting an order to refer the status of the payment request and the
process result; and
a sound input part for inputting a voice order to refer to the status of the payment request
15 and the process result.

13. A fee collecting method for motor vehicles, the method comprising the steps of:
receiving the information of an entering motor vehicle from the entering motor vehicle
when the entering motor vehicle is detected;
20 storing the information of the entering motor vehicle received from the entering motor
vehicle;
receiving the information of a departing motor vehicle from the going-out motor vehicle
when the departing motor vehicle is detected;
storing the information of the departing motor vehicle received from the departing motor
25 vehicle;
extracting the information of the entering motor vehicle corresponding to the information
of the departing motor vehicle when the storing of the information of the departing motor vehicle
is completed;

5 calculating a charge based on the information of the entering motor vehicle and the
information of the departing motor vehicle; and
requesting a payment of the charge calculated in the calculating step.

10 14. The method according to claim 13, wherein the information of the entering motor
vehicle received in the step of receiving the information of the entering motor vehicle includes a
telephone number of a mobile terminal, the license number of the motor vehicle and the kind of
the motor vehicle.

15 15. The method according to claim 13, wherein the step of storing the information of the
entering motor vehicle includes a step of storing the time of receiving the information of the
entering motor vehicle.

20 16. The method according to claim 13, wherein in the step of receiving the information of
the going-out motor vehicle, the information of the going-out motor vehicle includes a telephone
number of a mobile terminal, the license number of the motor vehicle and the kind of the motor
vehicle.

25 17. The method according to claim 13, wherein the step of storing the information of the
departing motor vehicle includes a step of storing the time of receiving the information of the
departing motor vehicle.

5 18. The method according to claim 13, wherein the step of calculating the charge includes a step of calculating a value, from the time of receiving the information of the entering motor vehicle to the time receiving the information of the departing motor vehicle, as the charge.

10 19. The method according to claim 13, wherein the step of requesting the payment includes a sending a request of the payment to the mobile communication service company of the telephone number of the mobile terminal included in the information of the motor vehicle.

15 20. A charge collecting method for motor vehicles, the method comprising the steps of:
receiving the information of an entering motor vehicle from the entering motor vehicle when the entering motor vehicle is detected;
storing the information of the entering motor vehicle received from the entering motor vehicle;
receiving the information of a moving motor vehicle from the moving motor vehicle when the moving motor vehicle is detected;
20 storing the information of the moving motor vehicle received from the moving motor vehicle;
receiving information of a departing motor vehicle from the departing motor vehicle when the departing motor vehicle is detected;
storing the information of the departing motor vehicle received from the departing motor
25 vehicle;
extracting the information of the entering motor vehicle and the moving motor vehicle corresponding to the information of the departing motor vehicle when the storing of the information of the departing motor vehicle is completed;

5 calculating a charge based on the information of the entering motor vehicle, the
information of the departing motor vehicle and the information of the moving motor vehicle; and
requesting a payment of the charge calculated in the calculating step.

10 21. The method according to claim 20, wherein in the information of the entering motor
vehicle received in the step of receiving the information of the entering motor vehicle, the
information of the entering motor vehicle includes a telephone number of a mobile terminal, the
license number of the motor vehicle and the kind of the motor vehicle.

15 22. The method according to claim 20, wherein the step of storing the information of the
entering motor vehicle includes a step of storing an identifier of the device detecting the entering
motor vehicle and the time of receiving the information of the entering motor vehicle.

20 23. The method according to claim 20, wherein in the step of receiving the information of
the moving motor vehicle, the information of the moving motor vehicle includes a telephone
number of a mobile terminal, the license number of the motor vehicle and the kind of the motor
vehicle.

25 24. The method according to claim 20, wherein the step of storing the information of the
moving motor vehicle includes a step of an identifier of the device detecting the moving motor
vehicle and time receiving the information of the moving motor vehicle.

25 25. The method according to claim 20, wherein in the step of receiving the information of
the departing motor vehicle, the information of the departing motor vehicle includes a telephone

5 number of a mobile terminal, the license number of the motor vehicle and the kind of motor vehicle.

26. The method according to claim 20, wherein the step of storing the information of the departing motor vehicle includes a step of an identifier of a device detecting the departing motor
10 vehicle and time receiving the information of the departing motor vehicle.

27. The method according to claim 20, wherein the step of calculating the charge includes a step of calculating a value between areas of the identifiers of the devices, which detects the motor vehicle, based on the information of the entering motor vehicle, the information
15 of the moving motor vehicle and the information of the departing motor vehicle as the charge.

28. The method according to claim 20, wherein the step of requesting the payment includes a step of sending a request of the payment to the mobile communication service company of the telephone number of the mobile terminal included in the information of the motor
20 vehicle.